

Title (en)

Engine starter apparatus.

Title (de)

Anlassvorrichtung für Verbrennungsmotor.

Title (fr)

Appareil de démarrage pour moteur à combustion interne.

Publication

EP 0387073 A1 19900912 (EN)

Application

EP 90302508 A 19900308

Priority

JP 5664989 A 19890308

Abstract (en)

An engine starter apparatus being arranged such that a rotational force from an electric motor (2) is transmitted to an output rotary shaft through a planetary speed reduction gear(7). The number Z_s of teeth of a sun gear(4), the number Z_p of teeth of a planet gear (7), the number Z_i of teeth of an internal gear (6) and the number N of the planet gears satisfy the equation $(Z_s + Z_i)/N$ an integer, and the pressure angle α_{bi} of the engagement between the planet gear and the internal gear is arranged to be $\cos^{-1}\{(Z_i - Z_p)/(Z_s + Z_p) \times \cos \alpha_{bs}\}$, where α_{bs} is the pressure angle of the engagement between the sun gear and the planet gear.

IPC 1-7

F02N 15/04

IPC 8 full level

F02N 15/02 (2006.01); **F02N 15/04** (2006.01); **F16H 1/28** (2006.01)

CPC (source: EP KR US)

F02N 15/02 (2013.01 - KR); **F02N 15/046** (2013.01 - EP US); **F16H 1/28** (2013.01 - KR); **Y10T 74/13** (2015.01 - EP US); **Y10T 74/137** (2015.01 - EP US)

Citation (search report)

[AD] WO 8802567 A1 19880407 - MITSUBISHI ELECTRIC CORP [JP]

Cited by

US5760485A; WO9619662A1

Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

EP 0387073 A1 19900912; **EP 0387073 B1 19930922**; DE 69003416 D1 19931028; DE 69003416 T2 19940505; JP H02238171 A 19900920; KR 900014738 A 19901024; KR 920006227 B1 19920801; US 4970908 A 19901120

DOCDB simple family (application)

EP 90302508 A 19900308; DE 69003416 T 19900308; JP 5664989 A 19890308; KR 900002970 A 19900307; US 48962190 A 19900307